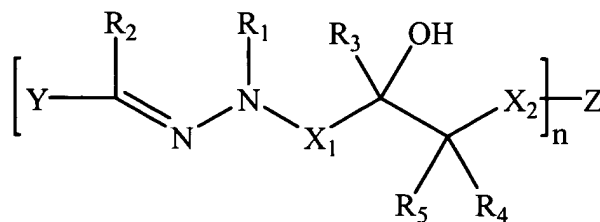


# CLAIMS

What is claimed is:

1. An organophotoreceptor comprising an electrically conductive substrate and a photoconductive element on the electrically conductive substrate, the photoconductive element comprising:

(a) a charge transport material having the formula



where n is an integer between 3 and 6;

R<sub>1</sub> and R<sub>2</sub> are, each independently, H, an alkyl group, an alkenyl group, an aromatic group, or a heterocyclic group;

R<sub>3</sub>, R<sub>4</sub>, and R<sub>5</sub> are, each independently, H, thiol, hydroxyl, carboxyl, an amino group, a halogen, nitro, cyano, an alkyl group, an alkenyl group, an aromatic group, a heterocyclic group, or a part of a ring group;

X<sub>1</sub> and X<sub>2</sub> are, each independently, a linking group;

Y comprises an arylamine group; and

Z is a bridging group; and

(b) a charge generating compound.

2. An organophotoreceptor according to claim 1 wherein Y comprises a carbazole group, a julolidine group, or an (N,N-disubstituted)arylamine group.

3. An organophotoreceptor according to claim 1 wherein X<sub>1</sub> and X<sub>2</sub>, each independently, comprise a -(CH<sub>2</sub>)<sub>m</sub>- group, branched or linear, where m is an integer between 1 and 20, inclusive, and one or more of the methylene groups is optionally replaced by O, S, N, C, B, P, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an NR<sub>6</sub> group, a CR<sub>7</sub>, or a CR<sub>8</sub>R<sub>9</sub> group where R<sub>6</sub>, R<sub>7</sub>, R<sub>8</sub>, and R<sub>9</sub> are, each independently, a bond, H, hydroxyl, thiol, carboxyl, an amino group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group, or part of a ring.

4. An organophotoreceptor according to claim 3 wherein  $X_1$  is a methylene group and  $R_3$ ,  $R_4$ , and  $R_5$  are each independently an H.

5 5. An organophotoreceptor according to claim 1 wherein Z comprises a  $-(CH_2)_p-$  group, branched or linear, where p is an integer between 1 and 20, inclusive, and one or more of the methylene groups is optionally replaced by O, S, N, C, B, P, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an  $NR_{10}$  group, a  $CR_{11}$ , or a  $CR_{12}R_{13}$  group where  $R_{10}$ ,  $R_{11}$ ,  $R_{12}$ , and  $R_{13}$  are, independently, a bond,  
10 H, hydroxyl, thiol, carboxyl, an amino group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group, or part of a ring group.

6. An organophotoreceptor according to claim 1 wherein the photoconductive element further comprises a second charge transport material.

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7. An organophotoreceptor according to claim 6 wherein the second charge transport material comprises an electron transport compound.

8. An organophotoreceptor according to claim 1 wherein the  
20 photoconductive element further comprises a binder.

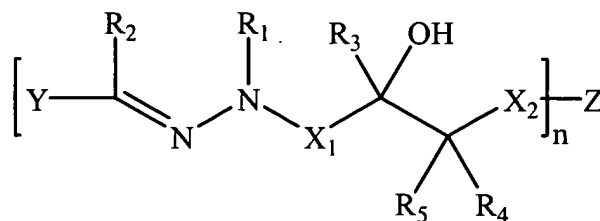
9. An electrophotographic imaging apparatus comprising:

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(a) a light imaging component; and

(b) an organophotoreceptor oriented to receive light from the light imaging  
25 component, the organophotoreceptor comprising an electrically conductive substrate and a photoconductive element on the electrically conductive substrate, the photoconductive element comprising:

(i) a charge transport material having the formula



where n is an integer between 3 and 6;

R<sub>1</sub> and R<sub>2</sub> are, each independently, H, an alkyl group, an alkenyl group, an aromatic group, or a heterocyclic group;

5 R<sub>3</sub>, R<sub>4</sub>, and R<sub>5</sub> are, each independently, H, thiol, hydroxyl, carboxyl, an amino group, a halogen, nitro, cyano, an alkyl group, an alkenyl group, an aromatic group, a heterocyclic group, or a part of a ring group;

X<sub>1</sub> and X<sub>2</sub> are, each independently, a linking group;

Y comprises an arylamine group; and

10 Z is a bridging group; and

(ii) a charge generating compound.

10. An electrophotographic imaging apparatus according to claim 9 wherein Y comprises a carbazole group, a julolidine group, or an (N,N-disubstituted)arylamine group.  
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11. An electrophotographic imaging apparatus according to claim 9 wherein X<sub>1</sub> and X<sub>2</sub>, each independently, comprise a -(CH<sub>2</sub>)<sub>m</sub>- group, branched or linear, where m is an integer between 1 and 20, inclusive, and one or more of the methylene groups is optionally replaced by O, S, N, C, B, P, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an NR<sub>6</sub> group, a CR<sub>7</sub>, or a CR<sub>8</sub>R<sub>9</sub> group where R<sub>6</sub>, R<sub>7</sub>, R<sub>8</sub>, and R<sub>9</sub> are, each independently, a bond, H, hydroxyl, thiol, carboxyl, an amino group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group, or part of a ring group.  
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12. An electrophotographic imaging apparatus according to claim 11 wherein X<sub>1</sub> is a methylene group and R<sub>3</sub>, R<sub>4</sub>, and R<sub>5</sub> are each independently an H.

13. An electrophotographic imaging apparatus according to claim 9, wherein Z comprises a  $-(CH_2)_p-$  group, branched or linear, where p is an integer between 1 and 20, inclusive, and one or more of the methylene groups is replaced by O, S, N, C, B, P, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an NR<sub>10</sub> group, a CR<sub>11</sub>, or a CR<sub>12</sub>R<sub>13</sub> group where R<sub>10</sub>, R<sub>11</sub>, R<sub>12</sub>, and R<sub>13</sub> are, independently, a bond, H, hydroxyl, thiol, carboxyl, an amino group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group, or part of a ring group.

14. An electrophotographic imaging apparatus according to claim 9 wherein the photoconductive element further comprises a second charge transport material.

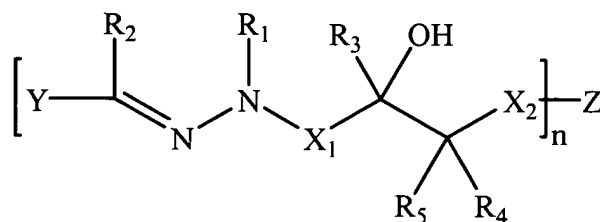
15. An electrophotographic imaging apparatus according to claim 14 wherein second charge transport material comprises an electron transport compound.

16. An electrophotographic imaging apparatus according to claim 9 further comprising a toner dispenser.

17. An electrophotographic imaging process comprising:

(a) applying an electrical charge to a surface of an organophotoreceptor comprising an electrically conductive substrate and a photoconductive element on the electrically conductive substrate, the photoconductive element comprising

(i) a charge transport material having the formula



where n is an integer between 3 and 6;

R<sub>1</sub> and R<sub>2</sub> are, each independently, H, an alkyl group, an alkenyl group, an aromatic group, or a heterocyclic group;

R<sub>3</sub>, R<sub>4</sub>, and R<sub>5</sub> are, each independently, H, thiol, hydroxyl, carboxyl, an amino group, a halogen, nitro, cyano, an alkyl group, an alkenyl group, an aromatic group, a heterocyclic group, or a part of a ring group;

X<sub>1</sub> and X<sub>2</sub> are, each independently, a linking group;

5 Y comprises an arylamine group; and

Z is a bridging group; and

(ii) a charge generating compound.

(b) imagewise exposing the surface of the organophotoreceptor to radiation to dissipate charge in selected areas and thereby form a pattern of charged and uncharged  
10 areas on the surface;

(c) contacting the surface with a toner to create a toned image; and

(d) transferring the toned image to substrate.

18. An electrophotographic imaging process according to claim 17 wherein Y  
15 comprises a carbazole group, a julolidine group, or an (N,N-disubstituted)arylamine group.

19. An electrophotographic imaging process according to claim 17 wherein X<sub>1</sub>  
and X<sub>2</sub>, each independently, comprise a -(CH<sub>2</sub>)<sub>m</sub>- group, branched or linear, where m is  
20 an integer between 1 and 20, inclusive, and one or more of the methylene groups is optionally replaced by O, S, N, C, B, P, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an NR<sub>6</sub> group, a CR<sub>7</sub>, or a CR<sub>8</sub>R<sub>9</sub> group where R<sub>6</sub>, R<sub>7</sub>, R<sub>8</sub>, and R<sub>9</sub> are, independently, a bond, H, hydroxyl, thiol, carboxyl, an amino group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group, or part of a  
25 ring group.

20. An electrophotographic imaging process according to claim 19 wherein X<sub>1</sub> is a methylene group and R<sub>3</sub>, R<sub>4</sub>, and R<sub>5</sub> are each independently an H.

21. An electrophotographic imaging process according to claim 17 wherein Z  
30 comprises a -(CH<sub>2</sub>)<sub>p</sub>- group, branched or linear, where p is an integer between 1 and 20,

inclusive, and one or more of the methylene groups is replaced by O, S, N, C, B, P, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an NR<sub>10</sub> group, a CR<sub>11</sub>, or a CR<sub>12</sub>R<sub>13</sub> group where R<sub>10</sub>, R<sub>11</sub>, R<sub>12</sub>, and R<sub>13</sub> are, independently, a bond, H, hydroxyl, thiol, carboxyl, an amino group, an alkyl group, an alkenyl group, a  
 5 heterocyclic group, an aromatic group, or part of a ring group.

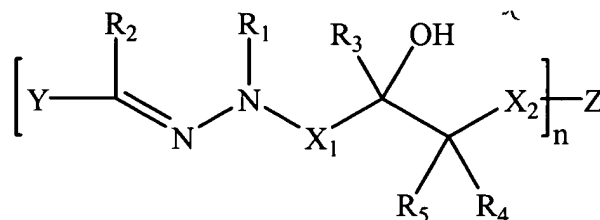
22. An electrophotographic imaging process according to claim 17 wherein the photoconductive element further comprises a second charge transport material.

10 23. An electrophotographic imaging process according to claim 22 wherein the second charge transport material comprises an electron transport compound.

24. An electrophotographic imaging process according to claim 17 wherein the photoconductive element further comprises a binder.

15 25. An electrophotographic imaging process according to claim 17 wherein the toner comprises a toner comprising colorant particles.

26. A charge transport material having the formula



20 where n is an integer between 3 and 6;

R<sub>1</sub> and R<sub>2</sub> are, each independently, H, an alkyl group, an alkenyl group, an aromatic group, or a heterocyclic group;

25 R<sub>3</sub>, R<sub>4</sub>, and R<sub>5</sub> are, each independently, H, thiol, hydroxyl, carboxyl, an amino group, a halogen, nitro, cyano, an alkyl group, an alkenyl group, an aromatic group, a heterocyclic group, or a part of a ring group;

X<sub>1</sub> and X<sub>2</sub> are, each independently, a linking group;

Y comprises an arylamine group; and

Z is a bridging group.

27. A charge transport material according to claim 26 wherein Y comprises a carbazole group, a julolidine group, or an (N,N-disubstituted)arylamine group.

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28. A charge transport material according to claim 26 wherein  $X_1$  and  $X_2$ , each independently, comprise a  $-(CH_2)_m-$  group, branched or linear, where m is an integer between 1 and 20, inclusive, and one or more of the methylene groups is optionally replaced by O, S, N, C, B, P, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an  $NR_6$  group, a  $CR_7$ , or a  $CR_8R_9$  group where  $R_6$ ,  $R_7$ ,  $R_8$ , and  $R_9$  are, independently, a bond, H, hydroxyl, thiol, carboxyl, an amino group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group, or part of a ring group.

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29. A charge transport material according to claim 28 wherein  $X_1$  is a methylene group and  $R_3$ ,  $R_4$ , and  $R_5$  are each independently an H.

30. A charge transport material according to claim 26 wherein Z comprises a  $-(CH_2)_p-$  group, branched or linear, where p is an integer between 1 and 20, inclusive, and one or more of the methylene groups is replaced by O, S, N, C, B, P, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an  $NR_{10}$  group, a  $CR_{11}$ , or a  $CR_{12}R_{13}$  group where  $R_{10}$ ,  $R_{11}$ ,  $R_{12}$ , and  $R_{13}$  are, independently, a bond, H, hydroxyl, thiol, carboxyl, an amino group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group, or part of a ring group.

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